

NICHOLAS NEGROPONTE  
**b e i n g d i g i t a l**

Nicholas Negroponte, Professor of Media Technology at MIT, is also Founding Director of the Media Lab.

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# digital

NICHOLAS NEGROPONTE



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To Elaine

who has put up with my being digital for exactly 11111 years

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**being digital**

## INTRODUCTION: THE PARADOX OF A BOOK

**B**eing dyslexic, I don't like to read. As a child I read train timetables instead of the classics, and delighted in making imaginary perfect connections from one obscure town in Europe to another. This fascination gave me an excellent grasp of European geography.

Thirty years later, as director of the MIT Media Lab, I found myself in the middle of a heated national debate about the transfer of technology from U.S. research universities to foreign companies. I was soon summoned to two industry-government meetings, one in Florida and one in California.

At both meetings, Evian water was served in one-liter glass bottles. Unlike most of the participants, I knew exactly where Evian was from my timetables. Evian, France, is more than five hundred miles from the Atlantic Ocean. Those heavy glass bot-

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## DEBUNKING BANDWIDTH

### FROM A TRICKLE TO A DOWNPOUR

**I**n the late 1960s, when I was an assistant professor of computer graphics, nobody knew what that was. Computers were totally outside everyday life. Today, I hear sixty-five-year-old tycoons boasting about how many bytes of memory they have in their Wizards or the capacity of their hard disks. Some people talk half-knowingly about the speed of their computer (thanks to the brilliant campaign of “Intel Inside”) and affectionately (or not) about the flavor of their operating systems. I recently met one socialite, a wealthy and charming woman, who knew so much about Microsoft’s operating system that she started a small business that provided consulting services for her “less-wired” peers. Her business card read, “I do Windows.”

I explain to you that we had dinner with Mr. X two nights before, at which time he explained that, contrary to —— he was in fact ——, even though people thought ——, but what he really decided was —— etc. Namely, 100,000 bits (or so) later, I am able to tell you what I communicated to my wife with 1 bit (I ask your forbearance with my assumption that a wink is 1 bit through the ether).

What is happening in this example is that the transmitter (me) and the receiver (Elaine) hold a common body of knowledge, and thus communication between us can be in shorthand. In this example, I fire a certain bit through the ether and it expands in her head, triggering much more information. When you ask me what I said, I am forced to deliver to you all 100,000 bits. I lose the 100,000-to-1 data compression.

There is a story of a couple who knew hundreds of dirty jokes so well that they would merely recite numbers to each other. The few digits would call up an entire story and send one or the other into uncontrollable laughter. More prosaic use of this method in computer data compression is to number commonly used long words and send those few bits, instead of the entire string of letters. We are likely to see more and more such techniques when we trade bandwidth against shared knowledge. The condensation of information not only saves on the cost of shipping bits but saves our time as well.

## **THE ECONOMY OF SALES**

Under today's methods of charging for telephone calls, I would pay a hundred thousand times more to send my story about

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## COMMINGLED BITS

### REPURPOSING THE MATERIAL GIRL

**T**he fact that, in one year, a then thirty-four-year-old former Michigan cheerleader generated sales in excess of \$1.2 billion did not go unnoticed by Time Warner, which signed Madonna to a \$60 million “multimedia” contract in 1992.

At the time, I was startled to see *multimedia* used to describe a collection of unrelated traditional print, record, and film productions. Since then, I see the word almost every day in the *Wall Street Journal*, often used as an adjective to mean anything from interactive to digital to broadband. One headline read, “Record Shops Yield to Multimedia Stores.” It would seem that if you are an information and entertainment provider who does